

STATE OF ILLINOIS



A REPORT ON ELECTRONICS EQUIPMENT DISPOSAL AND RECYCLING

REPORTING TO
GOVERNOR ROD R. BLAGOJEVICH,
THE 94TH GENERAL ASSEMBLY,
AND IEPA DIRECTOR, DOUG SCOTT

May 12, 2006



May 15, 2006

The Honorable Rod R. Blagojevich,
The Honorable Members of General Assembly,
IEPA Director, Doug Scott

I am pleased to provide you a copy of the first required report of the Computer Equipment Disposal and Recycling Commission, created by Public Act 94-0518.

This report presents the Commission's findings and recommendations regarding:

- problems and concerns related to the disposal and recycling of computer equipment;
- legislative, regulatory, or other actions within the area of computer equipment disposal, and related subject matter;
- the development and establishment of pilot programs and ongoing programs for the recycling and proper disposal of computer equipment.

The Commission was required to develop and submit this report of its findings and recommendations to the Governor and General Assembly on or before May 31, 2006. In preparing its report, the Commission sought input from and consulted with business organizations, trade organizations, trade associations, solid waste agencies, and environmental organizations with expertise in computer equipment disposal and recycling. On May 12, 2006, the Commission held a second meeting to consider the draft. After some discussion of the contents, the report was approved unanimously.

This report contains a relatively extensive discussion concerning problems and opportunities associated with computer and electronic equipment disposal and recycling. Although additional research, analysis, discussion and debate of some specific details will be necessary, this document does recommend general parameters and should be viewed as a general guide for further action.

For example, final legislation should specifically address the proper handling and destruction of personal or sensitive data stored on certain electronic devices, and requirements for the certification of environmentally friendly e-scrap recyclers. Such legislation will need to contain details that require additional investigation.

I want to thank Senator John Millner and Senator Susan Garrett for sponsoring this very important piece of legislation, as well as the other Commission members, Representative Tom Holbrook, Representative Michael Tryon, Katie McClain of the Lt. Governor's Office, and Doug Scott, Director, Illinois Environmental Protection Agency.

If you need additional information on the Computer Equipment Disposal and Recycling Commission, or this report, contact Hans Detweiler of my staff at (312) 814-2266.

Sincerely,

Jack Lavin, Director
Commission Chair

cc: Commission Members

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Note: For a more comprehensive list of supporting documents, please visit DCEO's website at www.illinoisrecycles.com and click on the "resources" link on the left side of the page, then Computer Equipment Disposal and Recycling Commission.

Acknowledgements

The Commission would like to thank State Senator John Millner for his efforts in sponsoring Public Act 94-0518, the stakeholders representing recyclers, environmentalists, retailers, manufacturers, and local governments who made presentations to the Commission (listed below), and Joe Shacter with the Environmental Law and Policy Center for his assistance and dedication to this project. This report was compiled by David Ross, DCEO, Bureau of Energy and Recycling.

I. Abstract

Public Act 94-0518 (HB 1149 – Millner) was signed into law by Governor Blagojevich on August 10, 2005, and created the Computer Equipment Disposal and Recycling Commission. Subsequently, the following were appointed and served on the Commission:

| MEMBERS | APPOINTED BY |
|--|--|
| Jack Lavin, Director DCEO – Chairperson | Governor |
| Katie McClain, Senior Policy Advisor Lt. Governor's Office – Vice Chairperson | Lt. Governor |
| Doug Scott, Director IEPA – Member | Governor |
| Thomas Holbrook, State Representative – Member | Speaker of the House |
| Michael Tryon, State Representative – Member | Minority Leader of the House of Representatives |
| Susan Garrett, State Senator – Member | President of the Senate |
| John Millner, State Senator – Member | Minority Leader of the Senate |

The Commission is tasked with 1) investigating problems and concerns related to the disposal and recycling of computer equipment, 2) advising the General Assembly and State agencies with respect to legislative, regulatory, or other actions within the area of computer equipment disposal, and related subject matter, and 3) making recommendations regarding the development and establishment of pilot programs and ongoing programs for the recycling and proper disposal of computer equipment. The Commission was also required to develop a report of its findings and recommendations for the Governor and General Assembly on or before *May 31, 2006*. In preparing its report, the Commission was directed to seek input from and consult with business organizations, trade organizations, trade associations, solid waste agencies, and environmental organizations with expertise in computer equipment disposal and recycling.

An initial meeting of the Commission was held in Springfield on January 11, 2006. Hans Detweiler, DCEO's Deputy Director of the Bureau of Energy and Recycling, chaired the meeting as Director Lavin's designee. During the meeting, stakeholder representatives from the Environmental Law and Policy Center, Illinois Retail Merchants Association, Electronics Industries Alliance, Illinois Counties Solid Waste Management Association and the Illinois Recycling Association addressed the Commission and presented their positions regarding the recycling and management of computer and other electronic discards. Specifically, presenters included:

| Presenters | Interest Group |
|--|-----------------------------|
| Rod Fletcher, President Illinois Recycling Association | Recyclers |
| Rick Goss, Director of Environmental Affairs Electronic Industries Alliance | Manufacturers |
| Bart Hagston, President IL Counties Solid Waste Management Association | Local Governments |
| Joe Shacter, Senior Policy Advocate Environmental Law and Policy Center | Environmental Organizations |
| David Vite, President Illinois Retail Merchants Association | Retailers |

DCEO's Bureau of Energy and Recycling staff provided technical and administrative support, including the development of a resource web page for the Commission. This site can be accessed by clicking on the "resources" link on the left side of the page displayed at "www.illinoisrecycles.com".

II. Glossary of Terms

"Advanced Recycling Fee" (ARF): At the time of purchase of a new covered electronic device (CED), an additional charge is imposed on the consumer to fund a statewide

recycling system. The total amount of fees collected is managed either by a state government agency or a third-party organization.

“Basel Convention” (on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal) is a global agreement ratified by over 100 member countries addressing the problems and challenges posed by hazardous waste. It aims to minimize the generation of hazardous wastes in terms of quantity and hazardousness, to dispose of them as close to the source of generation as possible and to reduce the movement of hazardous wastes. For more information go to www.basel.int.

“Cathode ray tube” (CRT) means a vacuum tube or picture tube used to convert an electronic signal into a visual image (e.g., computer monitor).

“Cellular Telephone” means a hand-held mobile radiotelephone, normally equipped with a viewing screen less than 4” when measured diagonally, for use in an area divided into small sections (cells), each with its own short-range transmitter/receiver.

“CMS” means the Illinois Department of Central Management Services.

“Computer” means an electronic, magnetic, optical, electrochemical, or other highspeed data processing device performing logical, arithmetic, or storage function, and may include both a computer central processing unit and a monitor, but such term does not include an automated typewriter or typesetter, a portable hand-held calculator, a portable digital assistant or other similar device.

“Covered electronic devices” (CED), for the purposes of this initiative includes, but are not limited to, desktop/personal computers, computer monitors, portable computers, desktop printers, other peripherals, CRT-based televisions, non-CRT-based televisions, VCRs and DVD players, fax machines, cellular telephones, MP3 players, and PDAs. “Covered electronic device” does not include any of the following:

- i. A covered electronic device that is a part of a motor vehicle or any component part of a motor vehicle assembled by, or for, a vehicle manufacturer or franchised dealer, including replacement parts for use in a motor vehicle.
- ii. A covered electronic device that is functionally or physically a part of a larger piece of equipment designed and intended for use in an industrial, commercial, or medical setting, including diagnostic, monitoring, or control equipment.
- iii. A covered electronic device that is contained within a clothes washer, clothes dryer, refrigerator, refrigerator and freezer, microwave oven, conventional oven or range, dishwasher, room air conditioner, dehumidifier, water pump, sump pump or air purifier.
- iv. Small consumer electronic devices including wristwatches, timers and clocks; sonar and fish locators; radar detectors; thermometers; levels, tape measures, stud finders and other electronic building supplies; garage door openers; games; range finders; and other similar devices.

“Covered electronic recycler” is one that is approved by the Entity for compensation.

“DCEO” means the Illinois Department of Commerce and Economic Opportunity.

“Design for Environment” (DfE) means 1) an environmental manufacturing process which reduces the level of toxic materials utilized in the manufacturing and production of a product and, 2) designing products that are easier to disassemble and recycle.

“E-cycling” is a generic term applied to the process of collecting, dismantling, refurbishing and/or recycling electronic discards.

“E-Scrap” or “e-waste” is a popular, informal name for electronic products at the end of their "useful life." The term is loosely applied to consumer and business electronic equipment and includes computers and their associated peripheral equipment, as well as televisions, VCR/DVD players, stereos, copiers, fax machines, and cellular phones.

“E-waste” or “e-scrap” is a popular, informal name for electronic products at the end of their "useful life." The term is loosely applied to consumer and business electronic equipment and includes computers and their associated peripheral equipment, as well as televisions, VCR/DVD players, stereos, copiers, fax machines, and cellular phones.

“IEPA” means the Illinois Environmental Protection Agency

“Entity” means the organization formed for implementing this initiative.

“Legacy” equipment means returned CEDs that were 1) produced by an original manufacturer that is still in business, but no longer makes the CED, or 2) the original manufacturer of the CED was acquired by another company which is still in business.

“Manufacturer” means any person who, either as of the effective date of this legislation or thereafter, and irrespective of the selling technique used, including by means of remote sale: 1) manufactures covered electronic devices under its own brand for sale in this State; 2) manufactures covered electronic devices for sale in this State without affixing a brand; 3) resells in this State covered electronic devices produced by other suppliers under its own brand or label; or 4) imports or exports covered electronic devices into the United States that are sold in this State. However, if a company from which an importer purchases the merchandise has a U.S. presence and/or assets, that company (and not the importer) shall be deemed to be the manufacturer.

“Monitor” means a separate visual display component of a computer, either sold separately or together with a computer central processing unit/computer box. A monitor is made up of: a cathode ray tube; liquid crystal display; gas plasma; digital light processing, or other image projection technology greater than four inches when measured diagonally; a case; interior wires and circuitry; a cable to the central processing unit; and power cord.

“Orphan” equipment means those returned CEDs for which the manufacturer 1) cannot be identified, or 2) is no longer in business and has no successor in interest.

“**Portable computer**” means a computer and video display greater than four inches in size when measured diagonally that can be carried as one unit by an individual (e.g., a laptop computer).

“**Producer Responsibility**” (PR) means manufacturers are responsible for the complete life-cycle of the products they make. They are charged with recycling/reusing end-of-life electronic equipment, and “internalizing the costs” into their operations or paying a per-unit fee based either on units sold or units returned for recycling. The total amount of fees collected is managed either by a state government agency or a third-party organization.

“**Recycling**” means any process by which covered electronic devices that would otherwise become solid waste or hazardous waste are collected, separated, and processed to be returned to use in the form of raw materials or products, in accordance with environmental standards established by the Illinois Environmental Protection Agency.

“**RCRA**” means Resource Conservation and Recovery Act and is the federal hazardous waste law.

“**Retailer**” means a person who owns or operates a business that sells new covered electronic devices in this State by any means to an end user.

“**Reuse**” means any operation by which a covered electronic device or component changes ownership for the same purpose for which it was originally put on the market, and includes repair and the continued use of whole systems or components.

“**Video Display Device**” means an output surface having a viewable area greater than four inches when measured diagonally that displays moving graphical images or a visual representation of image sequences or pictures, showing a number of quickly changing images on a screen in fast succession to create the illusion of motion, including, if applicable, a device that is an integral part of the display (and cannot be easily removed from the display by the consumer) that produces the moving image on the screen. Displays typically use a CRT, liquid crystal display (LCD), gas plasma, digital light processing, or other image projection technology.

III. Executive Summary

Discarded electronic equipment, known as e-scrap or e-waste, is the fastest growing type of waste in the U.S. In 2006, over 100 million cell phones will be thrown away, and 163,420 TVs and computers will become obsolete *every day*. And it will only get worse. TVs have a useful life of 10 years, but in 2009, when analog broadcasting is expected to disappear, millions of TVs will become outmoded overnight.

E-waste contains varying levels of hazardous chemicals, identified by U.S. EPA as priority toxins because they do not break down when released into the environment, and are

dangerous even in tiny quantities. Manufacturers point out that materials are present in specific applications due to their measurable safety, energy efficiency or performance benefits and that many producers have been striving to develop alternatives for several years.

As the U.S. has not signed the Basel Convention, a worldwide treaty governing waste exporting, unscrupulous “recyclers” export used equipment to some of the world’s poorest countries. There, unprotected workers are exposed to toxic materials while disassembling equipment. The electronics industry, legitimate recyclers, and environmentalists all want this practice to end.

Computer circuit boards also contain valuable metals such as gold and copper, in relatively high concentrations. However, the electronics industry says that the cost to collect and transport obsolete equipment, combined with the cost of recycling, currently makes buying virgin metal cheaper.

The labor intensity of computer repair makes it a potential job creator. According to a 2003 report prepared by the Solid Waste Association of North America (SWANA), every 1,000 tons of used electronics requires 200 jobs to refurbish the equipment for reuse, or 15 jobs to recycle it — compared to only one job to landfill it. When refurbished equipment is sold rather than donated, there is also a profit motive. Similarly, recycling materials harvested from junked equipment can also be a profitable venture when one considers that demand is expected to rise 10% a year for recycled plastic, 8% for metals mined from end-of-life electronic waste, and 7.5% for CRT glass.

Furthermore, the Illinois Recycling Economic Information Study (Prepared by R.W. Beck, December 2001) measured the size and extent of the recycling industry in Illinois and created an economic model to estimate indirect and induced economic benefits of recycling. The model was also used to examine the economic impact that would result if all electronic products in Illinois were either recycled or refurbished. The study predicted that the direct economic impact to the recycling industry would include: 23 new recycling businesses; 1,813 net new jobs created; \$53.8M in annual payroll; and \$417M in annual receipts. Including the estimated indirect and induced impacts, the total economic impact becomes 3,913 new jobs; \$124M in annual payrolls; and \$744M in annual receipts.

E-waste or e-scrap is not banned from Illinois landfills and the e-cycling infrastructure in many parts of the state has been slow to develop as the demand for e-cycling services, which can be costly, is only now starting to gain momentum. In order to capitalize on these positive economic benefits, DCEO has undertaken various efforts to help advance the infrastructure to refurbish/reuse/recycle increasing volumes of end-of-life electronics and electronic components in Illinois. DCEO is seeing jobs being created in the e-cycling industry that is developing in Illinois and believes that implementation of the recommendations in this report would help maximize the economic benefits that e-cycling promises.

How to finance e-cycling is strongly debated. The two basic models are the Advance Recovery Fee (ARF), a charge imposed on the consumer at the point of purchase; and Producer Responsibility (PR), where manufacturers are responsible for the complete life-cycle and recycling of their products (a “take back” program), or pay a fee per piece of equipment either sold or returned for recycling. Monies collected would fund a state agency or a new Entity to collect and distribute the fees, and manage a state-wide recycling system.

Retailers generally favor PR; TV manufacturers oppose it. Computer manufacturers are split. Retailers face the concern that retail fees will drive customers to the Internet to buy from manufacturers, particularly as Illinois doesn’t actively collect sales tax on merchandise sold by out-of-state entities--this is left up to the consumer to report on individual tax returns.

Currently, there is no federal requirement to recycle e-waste. Efforts to develop a federal system have been unsuccessful. Maine, Maryland and Washington State have adopted PR legislation; while California adopted ARF. Illinois, other Midwestern states and the U.S. EPA have convened a regional initiative to draft PR-based model legislation for the Midwest; the Northeast region also has drafted a regional PR bill. Staff members from the IEPA have participated in the Midwest effort and the Commission is supportive of many of the group’s concepts. However, to date the group has not been able to achieve consensus and no final agreement has been reached. Minnesota, Maine, Arkansas, North Carolina, and California all ban CRTs from landfills, and enjoy dramatically higher levels of recycling than other states. The European Union and Japan have adopted directives.

Primary Recommendations

In the continuing absence of a national system, the goal should be to create consistency and coordination between states. Therefore, the Commission’s recommendations are largely consistent with the draft Midwest initiative.

The Commission supports a “**shared responsibility**” model, a hybrid of the ARF and PR models, under which producers would pay a fee based on qualifying sales or share of returned equipment in the State and retailers would provide sales data. We believe that this will lead to a well-funded system and will provide the necessary incentive for manufacturers to ultimately spend less on recycling by using less hazardous material and making products that are easier to recycle. We further believe that an ARF is too cumbersome to administer and can be problematic for equipment sold directly from a manufacturer to consumers on the Internet. An ARF also places no responsibility on manufacturers, thus providing no incentive to modify the products to be easier to recycle and less toxic.

The Commission supports the following key concepts:

1) Discussion of an Entity to Administer the Electronics Recycling Program

The Commission supports the creation of an Entity charged with the collection and administration of the fees remitted by manufacturers for the sale of covered electronic

devices (CEDs). This Entity shall be created within one year of the passage of this initiative. This Entity could be created and administered within a state agency, be a commission or authority, or be a not-for-profit public benefit corporation created by the General Assembly.

The Entity would be responsible for managing a cost-efficient and environmentally sound State collection, transportation, and recycling system for covered electronic devices.

The Entity will develop, implement and support statewide electronics collection, transportation and recycling services for covered electronic devices, collect and distribute fee proceeds, provide reports on the program to the Governor and Legislature, and make recommendations regarding the improvement of the program and adjustments in fees. These efforts shall be coordinated with all stakeholders in order to avoid duplicative initiatives.

2) Producer Responsibility

Under this plan, manufacturers are responsible for the complete life-cycle and recycling of their products (a “take back” program), or pay a fee per piece, perhaps by weight, of equipment either sold or returned for recycling in addition to their share of orphan products. A significant strength of Producer Responsibility is the fact that by making manufacturers responsible, those companies have the incentive to keep recycling costs down – and the easiest way to do this is to design products that are easier to recycle and are made of less toxic materials.

- Fees would be based on either manufacturer market share, or manufacturer return share, or a hybrid of the two. This concept needs to be more thoroughly researched as to avoid providing a competitive advantage to any particular effected party.
- Retailers would be the sales data providers and primary points of educating consumers about where and how to properly recycle CEDs, making them part of the solution.
- Manufacturers could be exempted from the fee by operating their own “take back” programs to collect CEDs. Manufacturers must achieve recycling target goals established by the Entity.
- Manufacturers would have the option of recycling their own CEDs or CEDs of other manufacturers as long as they recycle a total amount equal to their goal for the year, as set by the Entity and which will include a share of orphan CEDs as discussed below.
- Orphan products would be apportioned fairly – by share of returned products or current market share. It should be noted that legacy CEDs are the responsibility of the original manufacturer, or the manufacturer that is that original manufacturer’s successor in interest. Orphan CEDs should include only those returned CEDs the manufacturer of which 1) cannot be identified, or 2) is no longer in business and has no successor in interest. Legacy manufacturers should be responsible for their equivalent share of returned CEDs and also their share of orphan waste.

- Fee revenues would fund the e-cycling programs of the Entity and support activities of DCEO and IEPA.

3) Fee Reduction for Manufacturers that Design for Environment (DfE)

Further, the Commission is of the opinion that an incentive should be developed for manufacturers to produce a product that is less toxic and easier to demanufacture and recycle. This is a key component of Illinois' producer responsibility initiative. It should also be noted that major effort should be given to avoid rewarding companies that came in late to the product stewardship process, as many established manufacturers have been working for years to reduce the use of materials of concern when feasible.

The challenge of an incentive to Design for Environment is to develop a system that is both fair and easy to administer (a system that does not add to reporting or other bureaucratic paperwork required of all manufacturers). An easy to administer system may be a system of a default fee structure with a voluntary manufacturer option to seek a reduced fee based on flexible criteria relating to the company's products' recyclability/reusability/hazardousness.

One potential approach would be to develop a baseline description of the components of all products covered by this initiative for each manufacturer seeking a reduced fee. Then, on an annual or bi-annual basis, a manufacturer under the jurisdiction of this initiative may apply for a permanent reduction in the per-unit fee for a product(s) to take effect the same year. Such an application would be based on a design and production change that would significantly improve the product's recyclability and/or reusability, or reduce the health risk posed by the materials in the unit, as judged exclusively by an appropriate authority, such as the IEPA or an advisory board established by the Entity for this purpose. This fee reduction could be revoked if the design and production change is reversed or altered to the detriment of recyclability/reusability/hazardousness in a future year.

Another approach would be to establish a threshold that equipment must minimally reach, then reward manufacturers for design improvements that go beyond this threshold.

4) Covered Electronic Devices (CEDs)

Unlike other initiatives which focus only on CRTs, the Commission believes it is necessary to maintain a broad-based scope of products including, but are not limited to, desktop/personal computers, computer monitors, portable computers, desktop printers, other peripherals, CRT-based televisions, non-CRT-based televisions, VCRs and DVD players, fax machines, cell phones, MP3 players, and PDAs. Household appliances are not included in this definition.

5) Individual Responsibility

Manufacturers may opt-out of the standard plan and choose to operate their own program to collect and recycle CEDs.

Manufacturers choosing to collect and recycle their own products are required to submit a plan to the Entity every three years demonstrating their strategy to collect and recycle products equivalent to what would be collected and recycled under the Entity, and would include their share of orphan products. Manufacturers qualifying for the individual responsibility option will not have a fee assessed on CEDs or be compelled to participate in the Entity's program.

A manufacturer choosing this option may write an individual plan or may participate as a member of a group plan in collaboration with other manufacturers. Manufacturers are encouraged to collaborate with electronic product retailers, certified waste haulers, recycling businesses, and local government solid waste management planning jurisdictions in the development of their plans. *(Note: This option described in more detail in Section V, Recommendations.)*

6) Disposal Ban

Consistent with the draft Midwest Regional Electronic Waste Recycling Policy Initiative, we propose a disposal ban two years after enactment of this initiative that would make it illegal for any person to knowingly mix any covered electronic device with municipal waste. Further, the ban would prohibit the owner or operator of a sanitary landfill from accepting any CED for final disposal in Illinois.

Other recommendations include classifying some e-waste as universal waste, restrictions on the use of hazardous substances in CEDs sold in Illinois, environmentally sound management requirements (including restrictions on exports to developing nations), repealing the Illinois law if a federal program is adopted that substantially meets its goals, and increased efforts by CMS, DCEO and IEPA.

IV. Background and Discussion

What is Electronic Waste and why is it a problem?

In the United States, e-waste or e-scrap is generally considered to be any discarded piece of electronic equipment: a television, computer, monitor, printer, videocassette or DVD player, or cellular phone. Although discarded refrigerators and other home appliances are considered e-waste in some countries, these are usually characterized as "white goods" in Illinois. Thus for purposes of this report, e-waste will be confined to the types of electronic equipment listed above.

E-waste or e-scrap is the fastest growing type of waste in the country. This is no surprise, because according to a November 2005 General Accounting Office (GAO) report, 62% of U.S. households had computers in 2003, compared with only 37% just six years earlier. The amount of junked equipment, as measured by several different organizations, is truly staggering:

- ABC News: 315-600 million computers will have become obsolete between now and mid-2007
- Inform: 130 million cellular phones will be thrown away annually by 2009

■ USEPA: 163,420 TVs and computers will become obsolete every day in '06

And it will only get worse. Televisions have a useful life of only ten years, computers just three, and analog broadcasting is anticipated to disappear. While the vast majority of televisions are, or will be, compatible with digital by the time the scheduled changeover is expected in early 2009, there still will be millions of TVs that will become outmoded overnight.

These outdated electronics can be landfilled, recycled, reused, or stored in attics or basements. According to a 2005 report by the General Accounting Office (GAO), studies indicate that less than 4 million monitors and 8 million televisions are landfilled annually in the U.S., which represents only a fraction of the amount estimated to become outdated annually. Currently, according to the USEPA and the National Safety Council, only about 10% of electronic products in the U.S. are recycled, while only 11-15% of computers are reused or recycled. This results in a tremendous amount of obsolete equipment that is neither being landfilled nor recycled and suggests that most are currently being stored or exported.

The growing volume of e-waste is a concern for several reasons:

- 1) The exporting of junked electronics to developing nations whose populations are exposed to toxic materials while taking them apart;
- 2) accessibility of data from “unwiped” hard drives that are simply thrown away – computer owners cannot truly delete their data before disposal;
- 3) the waste of precious metals (gold, silver, platinum, and copper, as well as iron and aluminum) in junked electronics which, if recycled, would reduce the need to mine for these metals in environmentally sensitive areas, where 17 times as much ore is needed to find the same amount of gold as in one ton of waste;
- 4) the sheer volume of the waste and how much landfill space it will require;
- 5) the hazardous metals now used in production (mercury, lead, cadmium, hexavalent chromium, and two problematic fire retardants), and the risk that those metals could leach into groundwater if not disposed of in a properly-managed landfill;
- 6) the lack of regulatory incentive for manufacturers to reduce or eliminate the usage of hazardous materials; and
- 7) the lack of environmental management standards for Electronics Recyclers. Recyclers' standards are set by a contract not by law.

The exporting problem is perhaps the most visible effect of e-waste. In January 2006, ABC News explored the problem at length in its “20/20” program. The core of the issue is that the United States has not signed the Basel Convention, a worldwide treaty that governs the export of waste. Consequently, low-cost recyclers pick up equipment and send it overseas for alleged “recycling” – a much cheaper alternative than recycling here. The equipment is shipped to cities like Lagos, Nigeria, where 500 40-foot containers of equipment arrive each month, ostensibly to be refurbished and distributed to disadvantaged individuals for reuse. In reality, according to the Basel Action Network, 75% of the equipment that ends

up in Nigeria is hazardous junk that is dumped, burned, and left for local children to climb on.

How does this happen? Municipalities often hold annual drop-off days, the budgets for which are quite tight. Low-bid “recyclers” are then hired, but the municipalities have no idea what happens to the material after pick-up. Industry, legitimate recyclers, and environmental groups are united in wanting this practice to end.

Additional background on a few more of the issues listed above should illustrate the scope of the problem. According to the GAO report cited earlier, the U.S. Geological Survey indicates that one metric ton of computer scrap contains more gold than 17 tons of ore and much lower levels of harmful elements common to ores, such as arsenic, mercury, and sulfur. Similarly, the survey says that one metric ton of computer circuit boards contains between 40 and 800 times the concentration of gold contained in gold ore and 30 to 40 times the concentration of copper, while containing much lower levels of harmful elements common to ores, such as arsenic, mercury, and sulfur.

Electronics manufacturers, however, have not yet seen an economic advantage to recycling materials from household electronics, such as precious metals, instead of buying them on the market. They suggest that the cost of collecting and transporting obsolete household equipment to recycling centers, when combined with the recycling cost itself, costs more than the price of the commodities on the open market.

Tangentially, the GAO report discusses research suggesting that the energy saved by recycling and reusing used electronics is significant. The author of one report by the United Nations University states that perhaps as much as 80 percent of the energy used in the life cycle of a computer, which includes manufacturing, can be saved through refurbishment and reuse instead of producing a new unit from raw materials.

The issue of landfill safety is somewhat controversial, because solid waste associations legitimately argue that modern, properly-run landfills can handle electronics without risk of leaching. However, again quoting the GAO report, “even with uncertainty surrounding the risks associated with toxic substances in used electronics, EPA has identified a number of these substances as priority toxic chemicals for reduction because they do not break down when released into the environment and can be dangerous even in small quantities.” There is also of course no guarantee that junked equipment, particularly in rural areas, will end up in a properly-run landfill. In addition, recent research titled “RCRA Toxicity Characterization of Computer CPUs and Other Discarded Electronic Devices”, completed by the University of Florida and funded by USEPA Region 4 and 5, concluded “.....sufficient evidence that discarded electronic devices that contain a color CRT or printer wiring boards with lead-bearing solder have a potential to be RCRA TC hazardous wastes for lead (unless otherwise excluded) and that generators should assume such devices are hazardous or should conduct specific testing to determine otherwise.”

Manufacturers point out that materials are present in specific applications due to their measurable safety, energy efficiency or performance benefits and that many producers have been striving to develop alternatives for several years.

How is E-waste Regulated?

According to the IEPA, there are no specific state laws or regulations that address the management of end-of-life electronic equipment. However, as certain components of electronic devices may be considered hazardous due to heavy metal or other constituents, the end-of-life handling of some electronic discards is regulated by the federal hazardous waste law – the Resource Conservation and Recovery Act (RCRA).

Under Subtitle C of the RCRA the United States Environmental Protection Agency (U.S. EPA) has promulgated regulations governing the nation's hazardous waste management program. These regulations are found at parts 260 through 279 of title 40 of the Code of Federal Regulations (CFR). These regulations first define which materials are considered solid wastes and then identify wastes that are hazardous and thus subject to RCRA hazardous waste requirements. Requirements are then set forth for hazardous waste generators, transporters, and owners and operators of treatment, storage, and disposal facilities.

It must be noted that RCRA does not apply equally to all generators of e-waste. While RCRA provisions apply to most businesses and institutions, they do not apply to households or other "small quantity generators." Small quantity generators are defined as entities that generate less than 100 kilograms (220 pounds) of hazardous waste per calendar month. Accordingly, households are not prohibited from disposing of used electronics in Illinois landfills because they are not specifically banned from landfills. Small Quantity Generators may not dispose of their hazardous waste – regardless of the amount generated – in an Illinois solid waste landfill.

There is apparently sufficient capacity for properly handling discarded e-waste generated by businesses and institutions. This may come with a significant cost of disposal/recycling particularly if the point of generation is not close to a recycling facility. This sometimes high cost can provide a financial incentive to avoid proper handling methods, occasionally leading to improper disposal or dumping.

One approach undertaken by other states to bridge the inherent disparity of the RCRA has been to adopt rules that classify e-waste as a "Universal Waste." In May 1995, the US EPA finalized streamlined requirements for collecting certain hazardous wastes under the Universal Waste Rule, codified in 40 CFR part 273. Initially covering household batteries, thermostats and obsolete agricultural pesticides, the rule was amended in 1999 to include fluorescent lamps. This rule is designed to reduce the amount of hazardous waste items in the municipal solid waste stream; encourage the recycling and proper disposal of some common hazardous wastes; and reduce the regulatory burden on businesses that generate these wastes when they recycle them. While this change may lead to more opportunities for recycling it still leaves the financial burden of proper handling on the generator of the device.

One of the recommendations of this report is that Illinois adopt rules to treat some e-waste as a universal waste.

What is the United States doing about E-waste?

Consider first the GAO report, which says the U.S. EPA's voluntary "Plug-in to eCycling" program has collected about 45 million pounds of electronic waste since 2003. Now consider GAO's overall estimate of 100 million computers, televisions, and monitors becoming obsolete each year, at respective average weights of 26, 50, and 30 lbs. At a simple average of 35 lbs. per piece, almost 10.5 billion pounds of these pieces have been discarded in the last three years, meaning that "Plug-in to eCycling" has collected 0.4% of the total possible. Why? Because the U.S. EPA lacks the enforcement mechanism to make the program successful.

The first-ever Congressional hearing on electronic waste took place during the summer of 2005. The House Subcommittee on Environmental and Hazardous Materials hosted the session, which featured speakers only from the U.S. EPA and the U.S. Department of Commerce. No manufacturers, retailers, recyclers, or non-governmental organizations (NGO's) participated.

Also in 2005, Senator Ron Wyden (D-OR) and Senator Jim Talent (R-MO) co-sponsored a \$15 tax credit for individuals recycling their old equipment. An \$8/unit credit would also go to companies that recycle at least 5,000 units of computer or television equipment in a given year. To date, this proposal remains just that – a proposal. Furthermore, it suffers from several flaws:

- The idea may be an insufficient incentive for consumers to "do the work" to find a recycler and then, as they must do today, pay for the recycling out of their own pockets;
- as a tax credit, the proposal does not fund a recycling system; and
- the credit worsens whatever governmental budget the tax credit comes from.

Given these drawbacks, this model will not be considered further in this report.

What about the Rest of the World?

In Europe, the Waste Electrical and Electronic Equipment (WEEE) directive took effect in 2005. Participating countries, which represent almost the entire continent, are developing their own methods for compliance following the framework outlined in the directive. Key elements are as follows:

- Responsibility is shared
- Manufacturers operate a take-back program
- Retailers are required to accept old equipment for pick-up
- Consumers are expected to bring old equipment to retail or other drop-off locations
- 0.01% and 0.1% by weight limits go into effect in July 2006 for lead, cadmium, mercury, hexavalent chromium and the two flame retardants (part of the RoHS directive).

Implementing this directive is proving to be a challenge. The main problem is what to do about inter-country sales. Amendments to the directive are expected soon, but the core of the directive is expected to be unchanged.

Japan has enacted similar legislation.

The States as Laboratories of Democracy

In the absence of federal action, several states and regions around the country have begun to act:

- Maine, Maryland, California, and Washington State all have enacted e-waste laws recently.
- U.S. EPA Region V, with Midwest regulatory and economic development agencies, has drafted regional legislation.
- A group of ten states in the Northeast region of the U.S. also has drafted model producer responsibility legislation for introduction in state legislatures (released in April, 2006).
- Minnesota, Maine, Arkansas, North Carolina, California and New Hampshire all have banned CRTs from landfills. (Not surprisingly, the GAO report quotes data suggesting that today, states and localities without landfill bans have dramatically lower levels of recycling than the five states that have enacted such bans.).
- California also has enacted a bill, effective July 1, 2006, requiring retailers to implement a cell phone take back program and manufacturers, who sell directly to consumers, are also required to participate.

Citing the European problem, manufacturers and retailers have expressed legitimate concern about what is becoming a patchwork of legislation from state to state. At the same time, the business community does want to see ground rules set, preferably at a national level. In the probable absence of such federal regulation for several years to come, their preference would be for regional legislation that is not only compatible among the states in each region, but across regions as well – thus forming the backbone of eventual national regulation.

Illinois' Efforts

In Illinois, Lt. Governor Pat Quinn is Chairman of the Green Government Coordinating Council, comprised of the directors of seven Illinois state agencies, working to promote the incorporation of pollution prevention and resource conservation practices into government and operations. The Council includes key officials from the DCEO and the IEPA and is working across state government toward recycling or reuse of old equipment. Along those lines, DCEO and IEPA are collaborating with other large institutions, the Chicagoland Chamber of Commerce, and school districts on donating such equipment to needy areas. Meanwhile, DCEO has aggressively funded projects to enhance the electronics recycling infrastructure including providing the city of Chicago with a nearly \$1 million grant to assist with the development of the Goose Island permanent electronics recycling facility (details and other efforts listed directly below). However, it is becoming clear that

regulatory action is needed to connect and unify these efforts, and provide them with the enforcement mechanism they need to significantly increase recycling and reuse.

In order to capitalize on the positive economic benefits, DCEO has undertaken various efforts to help advance the infrastructure to refurbish/reuse/recycle increasing volumes of end-of-life electronics and electronic components in Illinois. These efforts include:

- For FY2006, DCEO issued a Request-for-Applications that sought projects which would advance the collection and processing of electronic equipment in Illinois. The application deadline closed on November 7, 2005. Nineteen (19) applications, seeking more than \$1 million, were received.
- In FY2005, DCEO issued a Request-for-Applications that sought projects which would advance the permanent collection and processing of electronic equipment in Illinois. This effort resulted in funding 17 geographically diverse projects totaling \$964,037 and leveraging approximately \$1.4 million in applicant investment in the projects. These projects offer public economic benefits through an estimated creation and retention of 43 jobs.
- Also in FY2005, DCEO provided grant funds for an electronics demanufacturing firm to offset the costs of a high quality modernization assessment of the firm's operations. The assessment was conducted to evaluate the efficiency of the firm's operation and construct a strategic plan for modernization implementation. The strategic plan allowed the firm to modernize and expand its electronics recycling operation in the most efficient and effective manner possible. The assessment provided valuable information required to expand and bring the firm's systems and processes up to modern process-flow standards. Through a more efficient operation, the firm will increase its recycling activities, remove discarded electronic equipment from the solid waste stream, become more competitive in the marketplace, and create important manufacturing jobs. Finally, as metals and plastics from recycled electronic equipment are substituted, downstream, for virgin materials in the manufacturing of products, natural resources are conserved.
- DCEO funded an electronics point-of-purchase promotion and education campaign in FY2005. This material has been placed on product display shelves of electronic retailers (e.g., Best Buy, Circuit City). The campaign educates the public about the need to properly recycle end-of-life computers and other electronic equipment and also informs citizens about local electronic equipment reuse and/or recycling options and encourages them to utilize these options. An expansion of this campaign has been funded for FY06.
- In FY2004, DCEO awarded a \$975,000 grant to the city of Chicago to develop a comprehensive electronics recycling program. The majority of these grant funds will be used to help pay for costs associated with the development of the centrally located Goose Island facility where citizens can drop off old, obsolete, and end-of-life electronics. This project is expected to commence in 2006, and will include a

component where ex-offenders are provided job skill training that will prepare them for jobs in the e-cycling field.

- In calendar years 2003 and 2004 the DCEO contracted with the Solid Waste Association of North America (SWANA) to develop an electronics recycling training manual. This manual provides basic information about electronics and why recycling and product stewardship for these materials are important. It also contains information that will help entities design and implement effective electronics recycling programs. DCEO promotes the availability of this manual and distributes it as requested. In addition to the manual, SWANA also held a two-day training course in June 2004, to present the information contained in the manual.
- DCEO awarded \$440,044 in grant funds to support six pilot electronics recycling projects in FY2001. These projects diverted over 2,000 tons of electronic waste from being landfilled in Illinois and helped create 15 new permanent jobs.
- In addition to providing ongoing technical assistance to entities developing electronic recycling collection and processing efforts, DCEO has developed a list of entities that offer computer and electronics recycling/refurbishment services in Illinois. This list is regularly updated and is accessible from DCEO's website. DCEO has also developed a general e-waste/e-cycling fact sheet that is available on the website.

Finally, a number of special collection days for e-waste have been provided – primarily by local governments – to accept unwanted devices, usually from homeowners. These collections are not provided throughout the state and are usually paid for through local taxes or landfill tipping fees.

Appendix B is a state map that shows current e-waste collection and processing facilities in Illinois. While there are a number of efforts to gather and properly process this material, it should be noted that much of the state has little or no readily accessible infrastructure, nor is state government empowered to prevent the kind of ethically troublesome “recycling” documented earlier. Illinois’ infrastructure is not fully mature and the Commission believes that the State needs to continue to support, and set ground rules for this development industry.

Also recognizing the importance of data privacy and the need to properly dispose of electronics, the State’s CMS has recently issued a Request-for-Proposals (RFP) to solicit competitive proposals from vendors to provide various computer hardware services. As a result of this RFP, CMS intends to award a Master Agreement(s) for various computer hardware service(s) as defined in this RFP. State law (P.A. 93-0306) requires all state agencies, boards, commissions, universities, etc., to remove all data (sensitive and/or confidential information) from computer hard drives.

The objective of this Master Contract is to obtain the most cost effective data removal/disposal, recycling, and computer hardware service(s) solution, and to ensure that all user agencies, departments, boards, commissions, and councils under the purview of the

Governor receive consistent and quality computer hardware service(s) throughout the state of Illinois.

Available Options

There is surprisingly little disagreement among the manufacturer, retailer, and environmental communities on the need to begin regulating electronic waste. What is debated, however, is how to finance the system by which it would be recycled.

There are generally two models under consideration:

- 1) Advance Recovery Fee (ARF): An additional charge, usually \$10 or less (California), is imposed on the consumer at the time a piece of electronic equipment is purchased.
- 2) Producer Responsibility (PR): Manufacturers become responsible for the complete life-cycle of the products they make, paying a fee per piece of equipment either sold or returned for recycling.

In either case, monies collected fund the operation of either a third-party organization or a governmental agency charged with creating, publicizing, and managing a state-wide recycling system, as well as collecting and distributing the fees. If/when a group of states enact legislation, it is presumed, in model bills drafted thus far, that each state would manage its own system, but work closely with its partners in the other states.

Who Supports What?

The ARF model was adopted by California in its legislation passed in 2003 and amended in 2004. Television manufacturers, none of which have manufacturing facilities in Illinois, generally support this concept. Their primary reason is that low-margin competition from abroad makes it difficult for them to absorb any additional costs or raise their prices. Thus a separate, government-imposed charge applied at the retail level makes the most sense to them. Although they no longer manufacture personal computers, IBM also supports the ARF, and would prefer not to have to be responsible for recycling or refurbishing products they no longer make.

Retailers are opposed to the ARF for several reasons. They are concerned that an additional fee applied at the retail level will drive more customers to the Internet, where they can buy directly from manufacturers. According to David Vite of the Illinois Retail Merchants Association, this is particularly applicable to Illinois because, as he testified at the Commission's January 11 hearing, the state currently cannot collect taxes on merchandise sold here by out-of-state entities. Furthermore, retailers claim that an ARF is a burdensome, complex, costly system that does not insure recycling.

Maine, Maryland, and Washington State, whose e-waste legislation has just taken effect, have adopted different versions of PR. U.S. EPA Region V's draft bill is also PR-based, although it has been crafted to assign various "tasks" to all constituencies involved. Model legislation proposed by the Council of State Governments/Eastern Regional Conference (CSG/ERC) and the Northeast Recycling Council, Inc. (NERC), representing ten states is also PR-based. Retailers generally favor PR, while TV manufacturers oppose it. The

computer manufacturing industry is split. Hewlett-Packard (HP) is openly supporting the PR concept, while Dell tacitly does so. Other computer manufacturers are in the ARF camp, like IBM.

What about Reuse?

As discussed above in relation to existing efforts in Illinois, there are programs underway to refurbish old computers and then donate or sell them at nominal costs to needy communities and organizations. There is also the federal tax deduction for charitable contributions of donated goods, and when refurbished equipment can be sold, rather than donated, there is also a profit-making motive as well. Further research is needed on whether these incentives are sufficient to encourage reuse. As pointed out below, the labor intensity of computer repair makes it a potential job creator. At the same time, it is thus a more expensive alternative than recycling.

In addition, by salvaging materials for reuse, it helps to close the *digital divide* by providing the opportunity for low-income students and families to obtain working computers at a lower cost.

Potential Economic Impact

According to a 2005 Business Communications Company, Inc. report, the demand for recycled plastic is expected to jump 10.2% annually for the foreseeable future, with demand for metals and CRT glass harvested from end-of-life electronic waste to grow 8.1% and 7.5% per year, respectively. These kinds of numbers translate into potential jobs. According to a 2003 report prepared by the Solid Waste Association of North America (SWANA), for every 1,000 tons of used electronics, 200 jobs are needed to refurbish equipment for reuse and 15 jobs are required to recycle it – compared to only one job needed to landfill it. These jobs correlate to direct and indirect economic growth through payroll, taxes, and consumer spending.

The Illinois Recycling Economic Information Study (Prepared by R.W. Beck, December 2001) measured the size and extent of the recycling industry in Illinois and created an economic model to estimate indirect and induced economic benefits of recycling. The model was also used to examine the economic impact that would result if all electronic products in Illinois were either recycled or refurbished. The study predicted that the direct economic impacts to the recycling industry would include: 23 new recycling businesses; 1,813 net new jobs created; \$53.8M in annual payroll; and \$417M in annual receipts. Including the estimated indirect and induced impacts, the total economic impact becomes 3,913 new jobs; \$124M in annual payrolls; and \$744M in annual receipts.

Unfortunately, e-waste is not banned from Illinois landfills and the e-cycling infrastructure in many parts of the state has been slow to develop as the demand for e-cycling services, which can be costly, is only now starting to gain momentum. As noted above, in order to capitalize on these positive economic benefits, DCEO has undertaken various efforts to help advance the infrastructure to refurbish/reuse/recycle increasing volumes of end-of-life electronics and electronic components in Illinois. DCEO is seeing jobs being created in the e-cycling industry that is developing in Illinois and believes that implementation of the

recommendations in this report would help maximize the economic benefits that e-cycling promises.

V. **Recommendations**

While there are varying opinions for establishing the best electronics recycling infrastructure, most agree that it is important to develop a national plan versus a patchwork of individual state efforts. In the apparent continuing absence of a national system, a regional approach is favored.

As stated earlier, representatives from the IEPA have been participating in a regional initiative with several Midwestern states in an effort to develop a consistent and unified approach for managing waste electronics. The Midwest Regional Electronic Waste Recycling Policy Initiative (MREWRPI) includes representatives from Minnesota, Michigan, Illinois, Wisconsin, Ohio, and Iowa. This effort is similar to the Northeast Regional Electronics Management Project undertaken by the ten Northeastern states under the auspices of the Council of State Governments, and builds on model legislation developed through their efforts and input from stakeholders.

Therefore, it is the Commission's opinion that Illinois should support a Midwestern Regional Electronic Waste Recycling Policy Initiative (MREWRPI) effort consistent with the recommendations included in this report and that the State should put forward legislation in support thereof.

The Commission supports a “**shared responsibility**” model, a hybrid of the Advanced Recovery Fee and Producer Responsibility models, under which producers would pay a fee based on qualifying sales or share of returned equipment for recycling in the State and retailers would provide sales data. We believe that this will lead to a well-funded system and will provide the necessary incentive for manufacturers to spend less on recycling by “Designing for Environment” – using less hazardous material and products that are easier to recycle. We further believe that an ARF is too cumbersome to administer and can be problematic for equipment sold directly from a manufacturer to consumers on the Internet. An ARF also places no responsibility on manufacturers, thus providing no incentive to modify the products to be easier to recycle and less toxic.

The Commission supports the following key concepts:

1) **Discussion of an Entity to Administer the Electronics Recycling Program**

The Commission supports the creation of an Entity charged with the collection and administration of the fees remitted by manufacturers for the sale of covered electronic devices (CEDs). This Entity could be created and administered within a state agency, be a commission or authority, or be a not-for-profit public benefit corporation created by the General Assembly.

The Entity would be responsible for managing a cost-efficient and environmentally sound State collection, transportation, and recycling system for covered electronic devices.

The Entity will develop, implement and support statewide electronics collection, transportation and recycling services for covered electronic devices, collect and distribute fee proceeds, provide reports on the program to the Governor and Legislature, and make recommendations regarding the improvement of the program and adjustments in fees. These efforts shall be coordinated with all stakeholders in order to avoid duplicative initiatives. For example, IEPA would focus on enforcement efforts and DCEO would focus on the enhancement and expansion of the infrastructure through its grant programs, such as the purchase of capital equipment and associated facility upgrades (e.g., electrical upgrades).

No fees shall be required of manufacturers until such time as the Entity has been fully incorporated and legally constituted or designated. The Entity shall be required to expend annual receipts per the responsibilities listed below, or relinquish it to the State.

The Entity shall submit a budget annually to the Legislature and spend no more than five percent of the total fees collected for its administrative expenses. The Entity shall annually compute a fee schedule for manufacturers that takes into account the need for the fund to cover all collection, transportation and recycling expenses.

Entity Responsibilities

- (1) As previously described, the Entity would be responsible for managing a cost-efficient and environmentally sound State collection, transportation, and recycling system for covered electronic devices.
- (2) The Entity shall organize, administer, and ensure that electronics collection opportunities are available throughout the state and in such a manner as to be convenient, to the maximum extent feasible, to all consumers in the state.
- (3) The Entity shall encourage the use of existing collection and consolidation infrastructures for handling covered electronic devices to the extent that this infrastructure is accessible on a regular and ongoing basis to Illinoisans, is cost effective, and meets the environmentally sound management requirements described herein.
- (4) The Entity shall, through contractual agreement, compensate for the collection and recycling of covered electronic devices, by qualified collectors and recyclers whether by government, for-profit corporations, non-profit corporations, retailers, manufacturers or any other party, for the reasonable costs associated with these activities. These activities should be audited annually. In order to strengthen the market for Illinois recycling companies, the Entity should not pay for costs associated with the use of prison labor.
- (5) The Entity shall maintain a list of all manufacturers in compliance with all reporting, financial, and other requirements of this Act and post the list on an Internet Website. After an established date, no manufacturers may sell a CED in

Illinois unless they are in compliance with the provisions of this initiative. Further, after an established date, no manufacturer or retailer may sell any CED in Illinois unless the CED is labeled with the manufacturer's brand, and such label is permanently affixed and is readily visible.

- (6) The Entity shall receive fees from manufacturers or their agents for the sale of covered electronic devices.
- (7) The Entity shall organize and coordinate public outreach in association with stakeholder education efforts.
- (8) The Entity shall use the fees for the sole purpose of fulfilling its responsibilities under this initiative.
- (9) The Entity shall prepare a business plan every three years that establishes per capita collection and recycling goals; and identifies any necessary state actions to expand the collection opportunities to achieve the per capita collection and recycling goals.
- (10) On an annual basis, the Entity shall report to the Governor and Legislature on the implementation of the system during the previous calendar year. The report will also be posted on the Entity's Website. The report must include:
 - i. A list of all parties participating in the system whom the Entity has designated as approved to receive payments, the amount of payments it has made to those parties, and the purpose of those payments.
 - ii. The total amount of covered electronic devices collected in the State the previous year as reported to the Entity.
 - iii. Progress toward achieving the overall annual total recovery and recycling goals described in the business plan.
 - iv. The total amount of fees collected.
 - v. A summary of funds expended by category:
 - a. Education
 - b. Administration
 - c. Collection
 - d. Transportation
 - e. Recycling
 - f. Disposal
 - g. Other
 - vi. Any surplus funds carried forward
 - vii. A complete listing of all collection sites and the amount of material collected at each site
 - viii. An evaluation of the effectiveness of the education and outreach program

- (11) The Entity shall be fully audited by an independent, certified public accountant at the end of each calendar year and said audit report submitted to the Legislature.
- (12) The Entity shall maintain a Web site and toll-free number complete with up-to-date listings of where consumers can bring covered electronics products for recycling.

2) Producer Responsibility

Under this plan, manufacturers are responsible for the complete life-cycle and recycling of their products (a “take back” program), or pay a fee per piece, perhaps by weight, of equipment either sold or returned for recycling in addition to their share of orphan products. A significant strength of Producer Responsibility is the fact that by making manufacturers responsible, those companies have the incentive to keep recycling costs down – and the easiest way to do this is to design products that are easier to recycle and are made of less toxic materials.

- Fees would be based on either manufacturer market share, or manufacturer return share, or a hybrid of the two. This concept needs to be more thoroughly researched as to avoid providing a competitive advantage to any particular effected party.
- Retailers would be the sales data providers and primary points of educating consumers about where and how to properly recycle CEDs, making them part of the solution.
- Manufacturers could be exempted from the fee by operating their own “take back” programs to collect CEDs. Manufacturers must achieve recycling target goals established by the Entity.
- Manufacturers would have the option of recycling their own CEDs or CEDs of other manufacturers as long as they recycle a total amount equal to their goal for the year, as set by the Entity and which will include a share of orphan CEDs as discussed below.
- Orphan products would be apportioned fairly – by share of returned products or current market share. It should be noted that legacy CEDs are the responsibility of the original manufacturer, or the manufacturer that is that original manufacturer’s successor in interest. Orphan CEDs should include only those returned CEDs the manufacturer of which 1) cannot be identified, or 2) is no longer in business and has no successor in interest. Legacy manufacturers should be responsible for their equivalent share of returned CEDs and also their share of orphan waste.
- Fee revenues would fund the e-cycling programs of the Entity and support activities of DCEO and IEPA.

3) Fee Reduction for Manufacturers that Design for Environment (DfE)

Further, the Commission is of the opinion that an incentive should be developed for manufacturers that produce a product that is less toxic and easier to demanufacture and recycle. This is a key component of Illinois’ producer responsibility initiative. It should also be noted that major effort should be given to avoid rewarding companies that came in late to the product stewardship process, as many established manufacturers have been working for years to reduce the use of materials of concern when feasible.

The challenge of an incentive to Design for Environment is to develop a system that is both fair and easy to administer (a system that does not add to reporting or other bureaucratic paperwork required of all manufacturers). An easy to administer system may be a system of a default fee structure with a voluntary manufacturer option to seek a reduced fee based on flexible criteria relating to the company's products' recyclability/reusability/hazardousness.

One potential approach would be to develop a baseline description of the components of all products covered by this initiative for each manufacturer seeking a reduced fee. Then, on an annual or bi-annual basis, a manufacturer under the jurisdiction of this initiative may apply for a permanent reduction in the per-unit fee for a product(s) to take effect the same year. Such an application would be based on a design and production change that would significantly improve the product's recyclability and/or reusability, or reduce the health risk posed by the materials in the unit, as judged exclusively by an appropriate authority, such as the IEPA or an advisory board established by the Entity for this purpose. This fee reduction could be revoked if the design and production change is reversed or altered to the detriment of recyclability/reusability/hazardousness in a future year.

Another approach would be to establish a threshold that equipment must minimally reach, then reward manufacturers for design improvements that go beyond this threshold.

4) Covered Electronic Devices (CEDs)

Unlike other initiatives which focus only on CRTs, the Commission believes it is necessary to maintain a broad-based scope of products including, but are not limited to, desktop/personal computers, computer monitors, portable computers, desktop printers, other peripherals, CRT-based televisions, non-CRT-based televisions, VCRs and DVD players, fax machines, cell phones, MP3 players, and PDAs. Household appliances are not included in this definition. It should be noted, that since the ramifications of being a CED are significant, a very specific definition of what current devices are CEDs and are not CEDs must be developed in statute or rulemaking as well as a process to categorize future, yet-to-be-designed electronic devices.

5) Individual Responsibility

Manufacturers may opt-out of the standard plan and choose to operate their own program to collect and recycle CEDS.

Manufacturers choosing to collect and recycle their own products are required to submit a plan to the Entity every three years demonstrating their strategy to collect and recycle products equivalent to what would be collected and recycled under the Entity, and would include their share of orphan products. Manufacturers qualifying for the individual responsibility option will not have a fee assessed on CEDs or be compelled to participate in the Entity's program.

A manufacturer choosing this option may write an individual plan or may participate as a member of a group plan in collaboration with other manufacturers. Manufacturers are encouraged to collaborate with electronic product retailers, certified waste haulers, recycling businesses, and local government solid waste management planning jurisdictions in the development of their plans.

Plans must contain the following elements:

- Systems for the collection, transporting and processing of covered electronic devices (CEDs);
- Service providers for the collection, transportation and processing of CEDs;
- Accounting and reporting systems that will be employed to track progress toward meeting collection and recycling targets set by the Entity for their share of CED returns in addition to a share of orphan and abandoned products;
- Timeline, including startup and implementation, with associated progress milestones with anticipated results; and
- A public information campaign to promote the recycling of electronic products and proper end of life management of the products by the final users. Manufacturers will work in collaboration with local governments and retailers in the development and implementation of this public information campaign.

Manufacturers choosing individual responsibility shall file an annual report with the Entity stating the amount of CEDs collected and recycled the previous year, as well as an evaluation of the existing infrastructure to fulfill their collection and recycling responsibilities. Plans must assure that collection services for covered electronic products are available to all citizens of the state. Plans must be approved by the Entity according to the criteria established by the Entity.

6) Disposal Ban

Consistent with the Midwest Regional Electronic Waste Recycling Policy Initiative (MREWRPI), we propose a disposal ban two years after enactment of this initiative that would make it illegal for any person to knowingly mix any covered electronic device with municipal waste. Further, the ban would prohibit the owner or operator of a sanitary landfill or municipal waste incinerator from accepting any CED for final disposal in Illinois.

7) Universal Waste Rule/Solid Waste Planning

The Commission recommends that the IEPA draft proposed rules for submittal to the Illinois Pollution Control Board (PCB) that would require any CED that is or could be considered hazardous waste be treated as Universal Waste in Illinois. The Commission further recommends that counties be required to address e-waste in their five-year Solid Waste Management plan updates required by the Solid Waste Planning and Recycling Act.

8) Restrictions on Hazardous Substances

Upon the effective date of this initiative, manufacturers of CEDs must be in compliance with the European Union's Restrictions on Hazardous Substances (RoHS) Directive.

This means that any new CED placed on the market in Illinois does not contain mercury, cadmium, lead, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE).

9) Environmentally Sound Management Requirements

CEDs collected through any program in Illinois, whether it be by manufacturers, retailers, for-profit or not-for profit corporations, units of government, etc., must be recycled in a manner that is in compliance with all applicable federal, state, and local laws, regulations, and ordinances, and must not be exported for disposal in a manner that poses a significant risk to the public health or the environment. This language is currently in the Midwest Initiative.

Further, the Commission proposes to add language that would more strictly affect the export of e-waste. This language could be developed from concepts found in the Basel Convention or the European Union's Waste Electrical and Electronic equipment (WEEE) initiative. Such language should require Illinois exporters to prove that the recovery, reuse and/or recycling operation took place under conditions that are equivalent to the requirements of federal, state and local laws and regulations observed in Illinois.

10) DCEO will Allocate More Resources

DCEO will allocate more resources and funding for electronics collection and processing projects in an effort to continue to strengthen the State's infrastructure prior to a landfill ban on CEDs. These efforts will seek to enhance and expand e-waste collection and processing facilities in Illinois and will be available for units of government, for-profit businesses, and not-for-profit organizations. Areas of the State that do not have readily accessible options for the proper processing of e-waste will be given priority consideration.

11) IEPA Efforts

IEPA will increase enforcement efforts for non-compliant e-waste generation, transportation or disposal. This should provide a significant incentive to manage e-waste properly, particularly through proper recycling. In addition, IEPA will pursue adding e-waste or some components of e-waste such as CRTs to the Universal Waste Rule to make recycling easier with less regulatory burdens. Also, in cases where new facilities are required to obtain permits to recycle e-waste, IEPA will expedite the processing of these permit applications whenever possible.

12) CMS Master State Electronics Recycling Contract

CMS will explore the enhancement of the aforementioned Master State Electronics Recycling Contract with qualified vendors that can be utilized by local government solid waste organizations. Such a contract would not only save local government staff time spent on contract development and administration, but would also provide for economies of scale, which would ultimately save money by reducing the recycling cost

paid per unit. Local governments would pay for the costs associated with the recycling services.

13) National Program

A national program should preempt Illinois' program if such a federal program substantially meets the intent of this initiative. Illinois should strongly support a national program to address the e-waste issue.

Fiscal Note:

Based on experience supporting the growth and enhancement of traditional recycling in Illinois, DCEO expects to continue to have a prominent role in advancing e-waste recycling. These roles include providing technical and financial support for businesses, organizations, and local governments involved in e-cycling; the management of grant-funded projects; and the undertaking of public and private outreach efforts to promote the proper recycling and reuse of electronic discards. DCEO expects that these roles will require the addition of five professional and administrative staff.

As the management of electronic discards becomes more structured in Illinois (e.g., treated as Universal Waste and banned from landfills), it is likely that the IEPA will need to add professional and administrative staff to carry out additional regulatory functions. This staffing increase would depend on the level of regulatory and permitting needs for the recycling facilities which will process the discarded electronic devices. If the current system of limited waste-facility permitting for recycling sites continues, then few if any additional permit processing staff would be required. If many more recycling sites are developed, then a modest increase (2-3 work years) in inspection and enforcement staffing may be needed to oversee these sites, respond to complaints and verify that they are operated correctly.

The Illinois Department of Revenue may have additional duties to collect a fee. If an Entity is, for example, a third party organization (TPO), or if individual manufacturers accept the e-waste for processing, then the state may not collect the fee. If manufacturers pay the fees then there would be a limited number of entities to collect the fee from, but assuring that the proper fees are paid may require additional auditing personnel.

Appendix A

AN ACT concerning environmental safety

Be it enacted by the People of the State of Illinois, represented in the General Assembly:

Section 5. The Environmental Protection Act is amended by adding Section 22.50 as follows:
(415 ILCS 5/22.50 new)

Sec. 22.50. Computer Equipment Disposal and Recycling Commission.

(a) The General Assembly finds that improper disposal of computer equipment presents a serious environmental threat. Computer equipment contains quantities of lead, mercury, other heavy metals, and plastics that, when improperly disposed of, can lead to environmental contamination.

(b) There is hereby created the Computer Equipment Disposal and Recycling Commission consisting of 7 members appointed as follows: 2 members appointed by the Governor, one of whom shall serve as Chairperson of the Commission; one member appointed by the Lieutenant Governor who shall serve as vice-chairperson; one member appointed by the Speaker of the House of Representatives; one member appointed by the Minority Leader of the House of Representatives; one member appointed by the President of the Senate; and one member appointed by the Minority Leader of the Senate; all of whom shall serve without compensation. The Commission may accept and expend for its purposes any funds granted to the Commission by any agency of State or federal government or through private donation dealing exclusively with computer equipment disposal.

(c) The Commission shall have all of the following objectives:

(1) To investigate problems and concerns related to the disposal and recycling of computer equipment.

(2) To advise the General Assembly and State agencies HB1149 Enrolled LRB094 09738 RSP 39994 b Public Act 094-0518 with respect to legislative, regulatory, or other actions within the area of computer equipment disposal, and any related subject matter (i.e. fax machines, printers, etc.).

(3) To make recommendations regarding the development and establishment of pilot programs and ongoing programs for the recycling and proper disposal of computer equipment.

(d) The Commission shall issue a report of its findings and recommendations in relation to the objectives listed in subsection (c) of this Section to the Governor, the General Assembly, and the Director of the Environmental Protection Agency on or before May 31, 2006. In preparing its report, the Commission shall seek input from and consult with business organizations, trade organizations, trade associations, solid waste agencies, and environmental organizations with expertise in computer equipment disposal and recycling.

(e) Beginning on May 31, 2007, the Commission shall evaluate the implementation of programs by the State relating to computer equipment disposal and recycling, and shall issue a report of its finding and recommendations to the Governor, the General Assembly, and the Director of the Environmental Protection Agency on or before December 31, 2008.

(f) The Commission, upon issuing the report described in subsection (e) of this Section, is dissolved.

Section 99. Effective date. This Act takes effect upon becoming law.

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Public Act 094-0518

E-Waste Recycling Facilities by County



E Waste Recycling Facilities



3/2006

E Waste Recycling Facilities Northeast Region

